

CHAPTER X: Q&A

DR. STRAUS: Well, I very much appreciate your humility in showing brilliant images and admitting that even you don't understand what they mean --

DR. ROSEN: I'm still scratching my head.

DR. STRAUS: -- indicating that there's so much more work to do. While people come to the microphone for some questions, if I can take the prerogative to have the first question, I'm sure this is one you've received many times before. Would you be willing to speculate what transduces the signal from the needle point centrally? What mediates where you put and twirl a needle to a specific limbic region?

DR. ROSEN: Great question. And you'll notice I didn't bring it up during the talk and that's because fundamentally, I have no clue, so let's just start with that. And I'm not sure anybody really has a great clue.

There have certainly been some very interesting studies that have looked into Tao and what happens around that acupuncture needle. We know that, for example, there seem to be changes in the connective tissue around there. The connective tissue proteins seem to actually get kind of wound up with the needles to some extent. And that suggests that there may be certain fibers, sensory fibers perhaps distinct from the normal fibrotactile fibers of heat or pain fibers that may be activated.

Now why it is that those connect to these particular brain regions, might it be more related to an autonomic effect of, you know, this kind of dull, aching sensation which kind of has a visceral, almost a visceral like appeal, the way we may get dull, you know, aches within our viscera and thus, we know through various pathways may institute that. I think we're really struggling to figure out what that is.

Question: My question is: "Have any attempts been made to measure other non-pain effects of acupuncture with FMRI?"

DR. ROSEN: It's a good question. Certainly, in all the baseline studies, we were just literally looking at the direct effects. There are the studies, for example, that Dr. Cho did earlier on looking at particular visual areas. But because the therapeutic effects of acupuncture have been at least most widely used in the pain area, most of the studies that I'm aware of have been focused on that.

One of the other areas that we're very interested in, however, is addiction. Again, that same kind of limbic and paralimbic area are the very areas that we see active, not with just pain, but say with cocaine administration. And so this modulation of that gives us the hypothesis that there may be actions, despite perhaps what Consumer Reports has concluded.

But that's another area where I think the biology of what we've learned kind of supports additional investigation and gives us some hints as to how we might be able to design those studies.

DR. STRAUS: And Ji Shing Hang in Beijing is very convinced that it works in cocaine addiction.

DR. STRAUS: A question over here, yes.

Question: Yes. In most of cases, actually, we do acupuncture, other than a few cases, you can see an instant effect after you do acupuncture, but most of times, the acupuncture effect is using up after a few hours after treatment or next day. I just wonder how that correlates to your image data.

DR. ROSEN: That's a very good point. The question relates to the fact that clinically, acupuncture effects tend to occur over hours or many days or even weeks. As we showed in the carpal tunnel study, there were few biological effects after the first two weeks of study, most of them came on later. And so how do these acute effects interact with that?

And of course, again, my answer is we don't know. We do know that these fundamental networks have projections to many parts of the brain and as Iris has shown, have the ability to seemingly recruit multiple nerve transmitter systems.

The question is what's the mechanism by which those acute changes lead to longer term plastic changes? It's not really clear. In fact, Kathleen's first ideas around dopamine, rather than say focusing on the opioid system, was the fact that the changes in opioids we knew occurred over much longer time frames. And the question was, was there something that preceded that and it did, indeed, seem like these dopaminergic changes may be preceding and thus, the changes in opioid systems seemed to occur as a consequence to that. Exactly those pathways, also good work for future studies.

DR. STRAUS: And a final question over here and we'll let Dr. Rosen go.

Question: It is common knowledge that acupuncture treatment often correlates with season, time of the day, patient constitution. Did you take into account these parameters in your studies, and if you do, how would you do it?

DR. ROSEN: Well, the short answer is on these early studies, that was not considered an important -- I don't want to say it wasn't considered important. It wasn't explicitly taken into account.

But I agree, since we know that there's significant diurnal variations in all of these same networks, I think it has to be yet another one of those important control features built into studies.

The challenge in all of these is how you design controls for all the potential things that you need to control for. Some will of course want you to control for the site of acupuncture. Others may argue that the site doesn't make a difference. You have the diurnal variations. You have expectancy effects, which are extremely important and you need to correct for, and it's hard to do true double blind studies in this setting.

They're very challenging studies to conceptualize and in the end, it's probably going to be an amalgam of many studies which lead to common findings, despite having different flaws, that I think will probably most likely give us confidence that what we're seeing is true, rather than any single study that's going to be able to take on all the different issues that we have to take into account.

Response: Okay, thank you.

DR. STRAUS: Thank you. If you would join me in thanking Dr. Rosen for fascinating us --

DR. STRAUS: Let me finish -- for fascinating us with these great images and challenging us to join with him to try to interpret them and over the coming years, translate what they mean actually to this traditional, empirically defined healing technique that now seems to mediate nervous system changes beyond our expectation and certainly involves pathways that were beyond the knowledge of even Eastern physicians at the time they discovered the concept of acupuncture. Thank you.

DR. ROSEN: Thank you.